PTO/SB/08b (08-03)
Approved for use through 06/30/2006. OMB 0651-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

Complete if Known	
Application Number	10/552,287
Filing Date	April 18, 2004
First Named Inventor	Anthony FUTERMAN et al
Group Art Unit	1656
Examiner Name	Not Yet Assigned
Attorney Docket Number	30227

Sheet 1 Of 4

Examiner Initials	Cite No.[1]	OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[2]
	1	Grabowski et al. "Human Acid β-Glucosidase - Use of Conduritol B Epoxide Derivatives to Investigate the Catalytically Active Normal and Gaucher Disease Enzymes", The Journal of Biological Chemistry,261(18): 8263-8269, 1986.	
	2	Berg-Fussman et al. "Human Acid β-Glucosidase - N. Glycosylation Site Occupancy and the Effect of Glycosylation on Enzymatic Activity", The Journal of Biological Chemistry, 268(20):14861-14866, 1993.	
	3	Roeber et al. "Crystallization and Preliminary X-Ray Analysis of Recombinant Human Acid Beta-Glucocerbrosidase, A Treatment for Gaucher's Disease", Biological Crystallography, D59: 343-344, 2003.	
	4	Dvir et al. "X-Ray Structure of Human Acid-?- Glucosidase, the Defective Enzyme in Gaucher Disease", The EMBO Journal, P.1-27, 2003.	
	5	Sawkar et al. "Chemical Chaperones Increase the Cellular Activity of N370S β-Glucosidase:, A Therapeutic Strategy for Gaucher Disease", PNAS, 99(24): 15428-15433, 2002.	
	6	Erickson et al. "Biosynthesis of the Ltsomal Enzyme Glucocerebrosidase", The Journal of Biological Chemistry, 260(26): 14319-14324, 1985.	
	7	Ahn et al. "Crystal Structure of Saposin B Reveals A Dimeric Shell for Lipid Binding", Proc. Natl. Acad. Sci. USA, 100(1): 38-43, 2003.	
	8	Amaral et al. "Gaucher Disease: Expression and Characterization of Mild and Severe Acid β-Glucosidase Mutations in Portuguese Type 1 Patients", European Journal of Human Genetics, 8: 95-102, 2000.	
	9	Amaral et al. "Type 1 Gaucher Disease: Identification of N396T and Prevalence of Glucocerebrosidase Mutations in the Portuguese", Human Mutation, 8: 280-281, 1996.	
	10	Beutler "Economic Malpractice in the Treatment of Gaucher's Disease", The American Journal of Medicine, 97: 1-2, 1994.	
	11	Beutler et al. "Gaucher Disease", The Metabolic and Molecular Bases of Inherited Disease, Chap.146: 3635-3668, 2001.	
	12	Beutler et al. "Two New Gaucher Disease Mutations", Human Genetics, 93: 209-210, 1994.	
	13	Brünger et al. "Crystallography & NMR System: A New Software Suite for Macromolecular Structure Determination", Acta Crystallographica Section D, 54: 905-921, 1998.	
	14	Buccoliero et al. "The Role of Sphingolipids in Neural Development: Lessons From Models of Sphingolipid Storage Diseases", Neurochemical Research, 27(7/8): 565-574, 2002.	

Signature	/David Steadman/	Considered	~~08/12/2008~~

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.
[1]. Applicant's unique citation designation number (optional). [2]. Applicant is to place a check mark here if English language Translation is attached.
This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. this collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS.
SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.
If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /DJS/

PTO/SB/08b (08-03)
Approved for use through 06/30/2006. OMB 0651-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

Complete if Known	
Application Number	10/552,287
Filing Date	April 18, 2004
First Named Inventor	Anthony FUTERMAN et al
Group Art Unit	1656
Examiner Name	Not Yet Assigned
Attorney Docket Number	30227

Sheet 2 Of 4

		OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS	
	15	Charrow et al. "The Gaucher Registry. Demographics and Disease Characteristics of 1698 Patients With Gaucher Disease", Archive of Internal Medicine, 160: 2835-2843, 2000.	
	16	Chi et al. "Crystal Structure of the β-Glycosidase From the Hyperthermophile Thermosphaera Aggregans: Insights Into Its Activity and Thermostability", FEBS Letters, 445: 375-383, 1999.	
	17	Cox et al. "Novel Oral Treatment of Gaucher's Disease With N-Butyldeoxynojirimycin (OGT 918) to Decrease Substrate Biosynthesis", The Lancet, 355: 1481-1485, 2000.	
	18	Davies et al. "Structures and Mechanisms of Glycosyl Hydrolases", Structure, 3: 853-859, 1995.	
	19	Dinur et al. "Human Acid β-Glucosidase: Isolation and Amino Acid Sequence of A Peptide Containing the Catalytic Site", Proc. Natl. Acad. Sci. USA, 83: 1660-1664, 1986.	
	20	Fabrega et al. "Site Actif de la Glucocérébrosidase Humaine: Prédictions Structurales et Validations Expérimentales", Journal de la Société de Biologie, 196(2): 151-160, 2002. Article in French.	
	21	Fabrega et al. "Human Glucocerebrosidase: Heterologous Expression of Active Site Mutants in Murine Null Cells", Glycobiology, 10(11): 1217-1224, 2000.	
	22	Fan "A Contradictory Treatment for Lysosomal Storage Disorders: Inhibitors Enhance Mutant Enzyme Acitivity", Trends in Pharmacological Sciences, 24(7): 355-360, 2003.	
	23	De La Fortelle et al. "Maximum-Likelihood Heavy-Atom Parameter Refinement for Multiple Isomorphous Replacement and Multiwavelength Anamalous Diffraction Methods", Methods in Enzymology, 276: 472-494, 1997.	
	24	Futerman et al. The Cell Biology of Lysosomal Storage Disorders", Nature Reviews in Molecular & Cellular Biology, 5: 554-565, 2004.	
	25	Futerman et al. "New Directions in the Treatment of Gaucher Disease", Trends in Pharmacological Sciences, 25(3): 147-151, 2004.	
	26	Grabowski et al. "Enzyme Therapy for Lysosomal Storage Disease: Principles, Practice, and Prospects", Annual Reviews in Genomics & Human Genetics, 4: 403-436, 2003.	
	27	Grabowski et al. "Enzyme Therapy in Type 1 Gaucher Disease: Comparative Efficacy of Mannose-Terminated Glucocerebrosidase From Natural and Recombinant Sources", Annals of Internal Medicine, 122(1): 33-39, 1995.	
	28	Grabowski et al. "Acid β-Glucosidase: Enzymology and Molecular Biology of Gaucher Disease", Critical Reviews in Biochemistry and Molecular Biology, 25(6): 385-414, 1990.	
	29	Grace et al. "Analysis of Human Acid β-Glucosidase by Site-Directed Mutagenesis and Heterologous Expression", The Journal of Biological Chemistry, 269(3): 2283-2291, 1994.	

Signature	/David Steadman/	Considered	~~08/12/2008~~

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.
[1]. Applicant's unique citation designation number (optional). [2]. Applicant is to place a check mark here if English language Translation is attached.
This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. this collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS.
SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.
If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /DJS/

PTO/SB/08b (08-03)
Approved for use through 06/30/2006. OMB 0651-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

Complete if Known	
Application Number	10/552,287
Filing Date	April 18, 2004
First Named Inventor	Anthony FUTERMAN et al
Group Art Unit	1656
Examiner Name	Not Yet Assigned
Attorney Docket Number	30227

Sheet 3 Of 4

		OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS	
	30	Henrissat et al. "New Families in the Classification of Glycosyl Hydrolases Based on Amino Acid Sequence Similarities", Biochemical Journal, 293: 781-788, 1993.	
	31	Henrissat et al. "Updating the Sequence-Based Classification of Glycosyl Hydrolases", Biochemical Journal, 316: 695-696, 1996.	
	32	Henrissat et al. "Conserved Catalytic Machinery and the Prediction of A Common Fold for Several Families of Glycosyl Hydrolases", Proc. Natl. Acad. Sci. USA, 92: 7090-7094, 1995.	
	33	Hrmova et al. "Catalytic Mechanisms and Reaction Intermediates Along the Hydrolytic Pathway of A Plant β-D-Glucan Glucohydrolase", Structure, 9: 1005-1016, 2001.	
	34	Jones "A Graphics Model Building and Refinement System for Macromolecules", Journal of Applied Crystallography, 11: 268-272, 1978.	
	35	Jones et al. "Improved Methods for Building Protein Models in Electron Density Maps and the Location of Errors in These Models", Acta Crystallographica Section A, 47: 110-119, 1991.	
	36	Korkotian et al. "Elevation of Intracellular Glucosylceramide Levels Results in An Increase in Endoplasmic Reticulum Density and in Functional Calcium Stores in Cultured Neurons", The Journal of Biological Chemistry, 274(31): 21673-21678, 1999.	
	37	Lachmann "Miglustat Oxford GlycoSciences/Actelion", Current Opinion in Investigational Drugs, 4(4): 472-479, 2003.	
	38	Legler "Glucosidases", Methods in Enzymology, 46(Chap.40): 368-381, 1977.	
	39	Legler "Glycoside Hydrolases: Mechanistic Information From Studies With Reversible and Irreversible Inhibitors", Advances in Carbohydrate Chemistry and Biochemistry, 48: 319-384, 1990.	
	40	Lloyd-Evans et al. "Glucosylceramide and Glucosylsphingosine Modulate Calcium Mobilization From Brain Microsomes Via Different Mechanisms", The Journal of Biological Chemistry, 278(26): 23594-23599, 2003.	
	41	Meivar-Levy et al. "Analysis of Glucocerebrosidase Activity Using N-(1-[14C]Hexanoyl)-D-Erythro-Glucosylsphingosine Demonstrates A Correlation Between Levels of Residual Enzyme Activity and the Type of Gaucher Disease", Biochemical Journal, 303: 377-382, 1994.	
	42	Miao et al. "Identification of Glu340 as the Active-Site Nucleophile in Human Glucocerebrosidase by Use of Electrospray Tandem Mass Spectrometry", The Journal of Biological Chemistry, 269(15): 10975-10978, 1994.	
	43	Mistry et al. "Therapeutic Delivery of Proteins to Macrophages: Implications for Treatment of Gaucher's Disease", The Lancet, 348: 1555-1559, 1996.	
	44	Morel et al. "Effect of Mutations Within the Peripheral Anionic Site on the Stability of Acetylcholinesterase", Molecular Pharmacology, 55: 982-992, 1999.	

Signature	/David Steadman/	Considered	08/12/2008

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.
[1]. Applicant's unique citation designation number (optional). [2]. Applicant is to place a check mark here if English language Translation is attached.
This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. this collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS.
SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.
If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /DJS/

PTO/SB/08b (08-03)
Approved for use through 06/30/2006. OMB 0651-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

Complete if Known	
Application Number	10/552,287
Filing Date	April 18, 2004
First Named Inventor	Anthony FUTERMAN et al
Group Art Unit	1656
Examiner Name	Not Yet Assigned
Attorney Docket Number	30227

Sheet 4 Of 4

		OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS	
	45	Murshudov et al. "Efficient Anisotropic Refinement of Macromolecular Structures Using FFT", Acta Crystallographica Section D, 55: 247-255, 1999.	
	46	Nyholm et al. "The Effect of Hydrogen Bonds on the Conformation of Clycosphingolipids. Methylated and Unmethylated Cerebroside Studied by X-Ray Single Crystal Analysis and Model Calculations", Chemistry and Physics of Lipids, 52: 1-10, 1990.	
	47	Otwinowski et al. "Processing of X-Ray Diffraction Data Collected in Oscillation Mode", Methods in Enzymology, 276(Chap.20): 307-326, 1997.	
	48	Perrakis et al. "Automated Protein Model Building Combined With Iterative Structure Refinement", Nature Structural Biology, 6(5): 458-463, 1999.	
	49	Qasba et al. "Substrate-Induced Conformational Changes in Glycosyltransferases", Trends in Biochemical Sciences, 30(1): 53-62, 2005.	
	50	Schüttelkopf et al. "PRODRG: A Tool for High-Throughput Crystallography of Protein-Ligand Complexes", Acta Crystallographica Section D, 60: 1355-1363, 2004.	
	51	Usón et al. "Advances in Direct Methods for Protein Crystallography", Current Opinion in Structural Biology, 9: 643-648, 1999.	
	52	Weinreb et al. "Effectiveness of Enzyme Replacement Therapy in 1028 Patients With Type 1 Gaucher Disease After 2 to 5 Years of Treatment: A Report From the Gaucher Registry", American Journal of Medicine, 113: 112-119, 2002.	
	53	Westhead et al. "Protein Structural Topology: Automated Analysis and Diagrammatic Representation", Protein Science, 8: 897-904, 1999.	
	54	Wilkening et al. "Lysosomal Degradation on Vesicular Membrane Surfaces", The Journal of Biological Chemistry, 273(46): 30271-30278, 1998.	
	55	Kabsch, "Automatic Processing of Rotation Diffraction Data From Crystals of Initially Unknown Symmetry and Cell Constants", Journal of Applied Crystallography, 26: 795-800, 1993.	

Signature	/David Steadman/	Considered	08/12/2008

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.
[1]. Applicant's unique citation designation number (optional). [2]. Applicant is to place a check mark here if English language Translation is attached.
This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. this collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS.
SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.
If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /DJS/